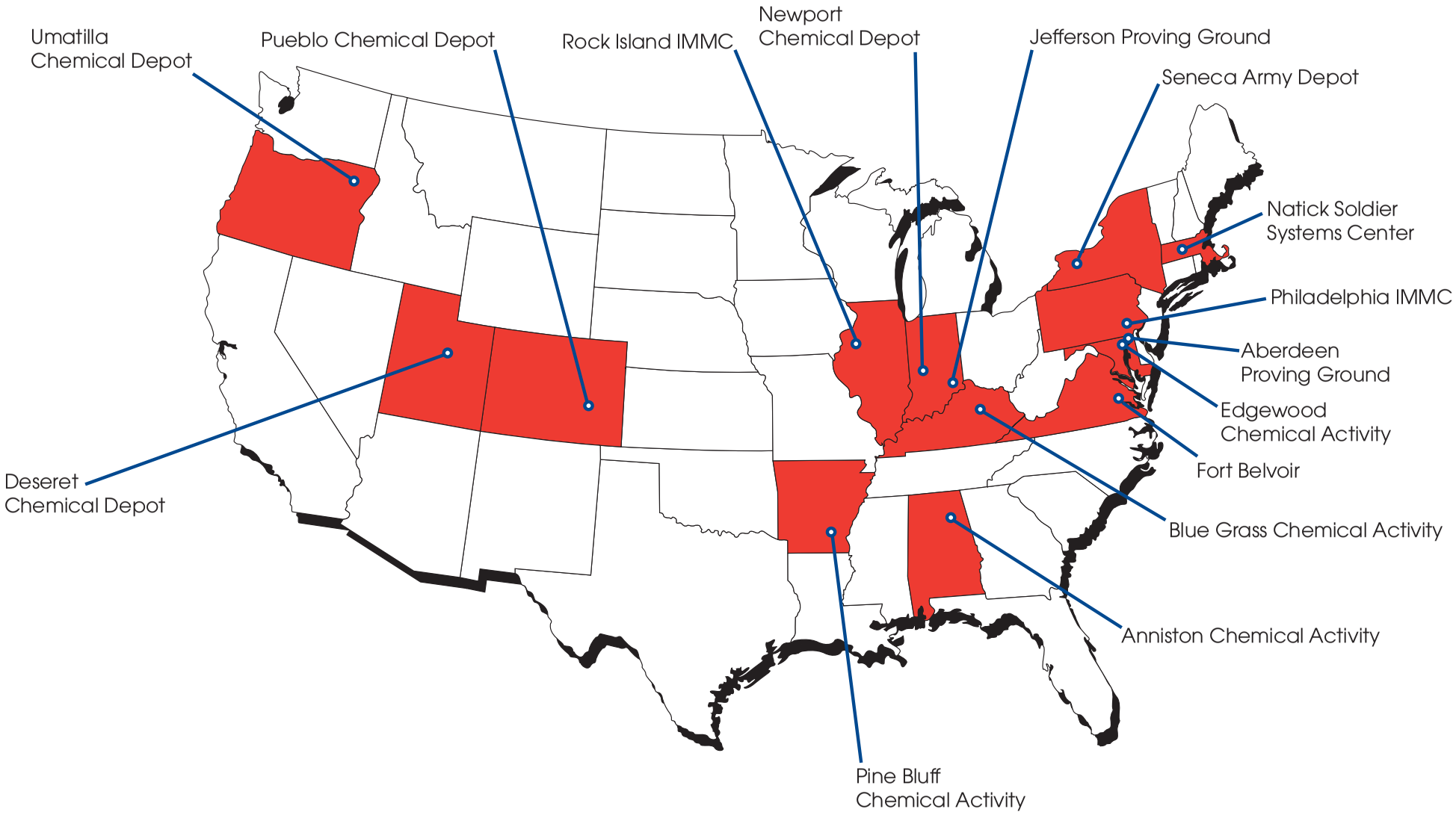
SBCCOM

U.S. Army Soldier and Biological Chemical Command



SBCCOM Staff and Facilities are Located Throughout the U.S.

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June 2000

Commander's Message

Major General John C. Doesburg
Commander, SBCCOM

The establishment of the Soldier and Biological Chemical Command (SBCCOM) signaled that the Army had embarked on a bold transformation to focus key soldier protection and projection capabilities in one command. SBCCOM is a multi-faceted organization that has missions of critical importance to our soldiers and our citizens. Providing safety, protection and food for our soldiers, supporting their deployments, researching, designing and acquiring their next generation equipment, safely managing America's chemical weapons stockpile and training for and responding to biological and chemical emergencies worldwide are priorities we take on everyday.

For the first time in Army organizational history, we have directly linked daily supervisory development and management of soldier ensembles with the parallel team working daily on chemical and biological (CB) enemy threat protection technology. The threats our soldiers face grow more lethal every day. Through the enhanced coordination effected by the SBCCOM organizational composite, our soldiers can fight more confidently, more effectively and more safely because this integration is ingrained in our workforce.

The creation of SBCCOM provides the Army with a more unified and efficient soldier clothing and CB equipment services management system. We are the soldier's advocate. His daily comfort and deployed support is a high priority for fighting efficiency. The soldier is the Army's most valued asset and our SBCCOM support system must and does emphasize that priority.

With SBCCOM in operation, the Army is better able to take advantage of new technological gains in all subject matter areas as we seek ways to detect CB threats and protect our soldiers. We must be ready to mobilize our Army assets to meet the needs of worldwide scientific transitions. For example, U.S. leadership and Army involvement in the human genome mapping projects will create the opportunity for "leap ahead" advances in CB protection and soldier systems.

The benefits above and many others are being realized because SBCCOM is comprised of dedicated Army and civilian professionals located throughout the U.S. who are trained to develop, integrate, acquire and sustain soldier and nuclear, biological and chemical defense technology systems. The people of our Command ensure a decisive fighting edge and protection for the United States.

As you can readily discern, at the core of our organization are people and technology. As a result of retaining and nurturing the best of both, SBCCOM is recognized as the leading authority in research and development, technological assistance and rapid response in the soldier and chemical and biological worlds. Additionally, SBCCOM serves as the U.S. Army's premier provider of expertise for soldier, biological and chemical matters through a number of programs designed to find ever-better ways to support our military forces on today's battlegrounds.

Leadership, teamwork, integrity, customer satisfaction, communication and continuous improvement are the core values SBCCOM follows to accomplish its mission, achieve its goals and attain its vision. Moreover, our extensive experience and exceptional technical knowledge ensure our continued success as the nation's leading source of equipment and services for defense of our nation.

Our soldier systems teams provide the troops with the items they wear, eat and carry in the field. The Land Warrior concept has come to fruition to be the first fully integrated fighting system to enhance the dismounted soldier's fighting capability. Our Force Provider approach is a dedicated effort that enables the Army to deploy "cities" that allow our troops better living conditions in the field. This, combined with the soldier support systems thrust, which manages the acquisition of materiel and services in the field, allows for the highest standard of living for any armed force in the operational environment.

Two years ago the Department of Defense (DoD) recognized our expertise and daily efforts by calling upon us to help protect our citizens and support local emergency responders in a high-priority national program. Because of our extensive knowledge in CB detection, analysis and protection systems, DoD called upon SBCCOM to support the Nunn-Lugar-Domenici legislation that created the national Domestic Preparedness Program and the Chemical Biological Rapid Response Team (CB/RRT).

As part of a federal agency team, we are providing training and crisis management exercises to America's first responders to improve their capabilities in the event of a terrorist attack. We are organized and trained and will respond with our personnel side by side with local teams in the event of a terrorist attack. We are a triple threat against terrorists. We also provide a Chemical-Biological HelpLine and an emergency 24-hour-a-day Domestic Preparedness HotLine. Through these systems our SBCCOM personnel are able to assist state and local officials and first responders on a daily basis with chemical and biological agent information. This is a good dual-use partnership for America and an excellent use of the tax dollars we are provided.

Protection is key to our mission, not only on the battlefield but for the public that surrounds the eight chemical weapons stockpile sites we manage. America has chemical stockpile sites located near Edgewood, Md.; Anniston, Ala.; Blue Grass, Ky.; Tooele, Utah; Newport, Ind.; Pine Bluff, Ark.; Pueblo, Colo.; and Hermiston, Ore.

The Chemical Stockpile Emergency Preparedness Program (CSEPP) is responsible for helping to prepare local communities in the event any chemical agent might unexpectedly be released at these sites. SBCCOM has teamed with the Federal Emergency Management Agency (FEMA) and coordinated with state and local governments to help protect the public in the event of an emergency. We have an outstanding safety management record at these eight sites and our efforts focus on maintaining that record.

As part of our stockpile management duties, SBCCOM continues to educate the public on the various safety measures ongoing under chemical weapons treaties. In doing so, SBCCOM is an international team partner as well. We cooperate with on-site international inspections to live up to our country's treaty obligations as well as our promise of a clean and healthy environment for future generations of Americans.

Scientifically SBCCOM has two major thrusts. Our CB staff has an outstanding history of accomplishment in the CB defense field since World War I. This Command provides support to all military services and many civilian agencies in the area of chemistry, toxicology, aerosol technology, biotechnology, detection, decontamination, protection and applied simulations and operations research. This Command is also DoD's topflight center for research on food, shelters, clothing, airdrop systems, and individual protection systems for the soldier. We have made great strides in arctic and tropical climate research, anthropometric research and fabric research. We are indeed in a complex business and we have top-of-the-line knowledge for defense.

Day in and day out, from the laboratory to the battlefield, as a growing "full service Command," SBCCOM provides defensive and response capabilities by fostering partnerships with communities, industry and other government agencies in developing and implementing soldier, chemical and biological defense systems to ensure protection for the United States. SBCCOM is committed to remaining the nation's recognized leader in equipment and services in support of our warfighters, peacekeepers and civilian responders.

John C. Doesburg
Major General, U.S. Army
Commanding

"Saving Lives Through Innovation"

People and Technology

SBCCOM is recognized as the leading authority in research and development, technological assistance and rapid response in the soldier and chemical-biological world.

SBCCOM is a major subordinate command of the Army Materiel Command (AMC). SBCCOM personnel support soldier missions globally and chemical stockpile and demilitarization functions throughout our nation. The Command includes headquarters facilities and a Chemical and Biological Center (ECBC) located in the Edgewood Area of Aberdeen Proving Ground and the entire Aberdeen Proving Ground (APG) Garrison. Other SBCCOM elements include the Soldier Systems Center (SSC) and the Integrated Material Management Center (IMMC) located in Natick, Mass.; a Nuclear Biological Chemical Defense and Smoke portion of the IMMC which is located in Rock Island, Ill.; IMMC Heraldry and War Reserve facilities located in Philadelphia, Pa.; management and environmental remediation responsibilities for Jefferson Proving Ground, Ind.; War Reserve facilities at Seneca Army Depot, N.Y.; and a component of the Project Manager for Soldier, located at Fort Belvoir, VA. In addition SBCCOM manages eight chemical storage sites throughout the United States. These eight chemical stockpile sites are located near Edgewood, Md.; Anniston, Ala.; Blue Grass, Ky.; Tooele, Utah; Newport, Ind.; Pine Bluff, Ark.; Pueblo, Colo.; and Hermiston, Ore.

Innovation And Leadership

The human factor makes technological developments productive by providing the vision to make innovative applications of a new concept possible. Top-notch people, when combined with advanced research and development facilities, will produce technologies that work for the world. Through more than 75 years of partnership with communities, industry and other government agencies, SBCCOM and its preceding organizations have developed and proven innovative technologies for protecting the soldiers and citizens of the United States. As a result, SBCCOM is recognized as the leading authority in research and development, technological assistance and rapid response in the soldier and chemical-biological world.

A Command doesn't earn that sort of reputation unless it counts the finest minds in the industry within its ranks. One SBCCOM professional recently honored for his work in the area of ballistics research is Phillip Cunniff. Mr. Cunniff is a research mechanical engineer at the SBCCOM Soldier System Center. He recently received the Louis and Edith Zernow Award for significantly increasing the fundamental understanding of the mechanics of ballistic impact on body armor. The award is given annually to the author of the paper that makes the most significant contribution to the advancement of the fundamental understanding in fields of ballistic science.

The award was presented at the International Symposium and Exhibition on Ballistics held in San Antonio, Texas, where Cunniff's work was chosen out of more than 300 submissions as the 1999 winner. The panel accepted eight papers written by Mr. Cunniff, including his winning submission entitled "Decoupled Response of Textile Body Armor".

SBCCOM Engineer Phillip Cunniff

"It was very flattering to have had eight papers that were well received, and even more flattering that they picked one of them to win," Cunniff said.

As a result of his work, engineers can now estimate the performance of two-component armor systems where the first component is a low-cost material and the second is high-cost, high-performance material. Cunniff determined through computer modeling and data how to build these systems at equal weight to high performance systems--with the same ballistic impact performance--at substantially lower cost. Additional benefits stemming from his work include ways to modify the mechanical properties of composite materials used primarily for ballistic impact performance to increase durability and stiffness.

Protecting and Eliminating Chemical Weapons

Key to the mission of SBCCOM is effectively and safely managing our nation's chemical weapons stockpiles. SBCCOM is handling the storage, remediation and supporting the reduction of over 19,000 tons of chemical weapons and agents. An important facet of this function is the partnership with the Program Manager Chemical Demilitarization (PMCD) to complete the mission to destroy these stockpiles in accordance with the Chemical Weapons Convention. While pursuing that mission, the safety and security of the communities and environments surrounding each SBCCOM site is paramount. Stockpile response forces are always prepared to respond to any chemical incident at the site to minimize and neutralize impacts. Employees are trained on hazardous materials (HAZMAT), explosive and chemical regulations as mandated by the AMC and the Occupational Safety and Health Association (OSHA). Sensitive monitoring systems are calibrated every day at on-site laboratories and meteorological conditions are assessed on a daily basis to determine whether scheduled operations should be conducted.

Preparing The Nation Against Chemical And Biological Terrorism

SBCCOM has conducted research that has added to the volumes of knowledge about chemical and biological agents. A significant part of SBCCOM's mission is to bring that knowledge to a forum where it directly benefits the citizens of the United States. One such umbrella effort is called the Homeland Defense (HLD) program. SBCCOM is very proud that the training it has provided ensures that federal, state and local agencies and on-base military personnel are prepared to respond to chemical or biological incidents in safe and effective ways.

Awareness of the domestic terrorism threat has continued to grow since the Oklahoma City bombing of 1995, and, as a result, legislation was enacted to ensure that America would not be caught off guard by future incidents. The DoD was asked to take charge of the Domestic Preparedness mission, an element of HLD, for the United States and SBCCOM responded to support the call.

Through the Domestic Preparedness program, SBCCOM is training 120 cities coast-to-coast in the proper response tactics for incidents of mass destruction involving chemical and biological weapons in addition to providing expert assistance to first responders around the country. The Chemical and Biological Rapid Response Team (CB/RRT) can respond quickly and effectively to national and international terrorist events. This team brings expertise in the areas of responder protection, agent detection, casualty decontamination and command and control assets to the incident.

By assigning SBCCOM to lead and administer the CB/RRT several efficiencies were immediately gained. The Technical Escort Unit (TEU), another SBCCOM team, is experienced in the daily transportation and handling of chemical and biological agents and provides response to accidents and incidents involving chemical-biological munitions. The TEU will respond to emergencies as part of the CB/RRT. SBCCOM is proud that innovative programs it developed to enhance soldier protection and in chemical and biological detection and protection technologies are benefiting our Nation's civilian responder and domestic defense efforts.

Technology For The Battlefield And Community Service

In addition to supporting the soldier in the field, the SBCCOM has reached out to a broader community through technology transfer and cooperative agreements with private industry, academia and other government agencies. Many times, technologies developed for military use contain exciting potential for future applications in the civilian sector.

One such asset is the Deployed Communication System (DCS). The DCS was developed in response to the need for the Chemical Biological Rapid Response Team (CB/RRT) to have a communications network that is portable and, if necessary, independent of the existing commercial communications infrastructure. As a deployable asset, the CB/RRT must have its own Command, Control and Communications (C3) capability in order to support both crisis and consequence emergency management missions, even in undeveloped areas or in the event of a public telecommunications system failure. SBCCOM formed a government-contractor team to determine what the requirements of such a system would be, formulate both a concept system and usage processes and acquired two independent DCS units.

The DCS' Digital Radio System will link at least 100 mobile users and is fully compatible with DoD and commercial communications venues. In 2000, it will connect the CB/RRT and other responders with each other by way of public and government switched networks and national and theater communications systems and to databases through Internet protocol networks. The DCS will provide involved organizations with a common picture of the emergency situation and support direct communications between all responders and resources via designated operation centers. Implementation of the DCS represents a significant modernization and upgrade of the CB/RRT communications infrastructure, allowing mobile, real or near-real time command and control capability that will greatly increase the effectiveness of deployed chemical-biological response forces across the board.

SBCCOM leads the way for applications and developments that can make our soldiers better, our cities safer and our emergency response system the best it can be. Innovations are sought daily in SBCCOM labs and conference rooms, bringing our military forces into the 21st century and allowing them to defend our nation's ideals better than ever before. Our cities are better prepared to respond quickly and effectively to terrorist action with the professional guidance and knowledge of the Command through programs like Domestic Preparedness.

"Protecting and Projecting the Soldier"

Warrior Protection

SBCCOM provides essential equipment and technology needed to deliver a decisive victory at any time, in any place, against any foe.

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At the beginning of this new millennium, SBCCOM's mission is quite complex. Command responsibilities range from the development of sophisticated soldier support systems to advanced research in such areas as nutrition, portable shelters, ballistic protection, battlefield obscurants and chemical and biological detection, protection and decontamination systems.

To develop and maintain the soldier, chemical and biological products and services needed, SBCCOM works closely with industry, colleges and universities, all branches of the military and other government agencies to ensure optimal state-of-the-art technology and support for the defense of our nation.

The ECBC provides full life-cycle support from laboratory facilities to protective devices and detection and monitoring equipment for the battlefield. Located at the Aberdeen Proving Ground in Edgewood, Md., this center has long been recognized for the development of chemical defense systems, obscuring smoke, aerosol systems and flame weapons.

One of the many important facilities within the center is the Bernard McNamara Life Sciences Research Laboratory. With almost 120,000 square feet of laboratory and administrative space, this research laboratory was designed to conduct state-of-the-art research and testing under the standards of Good Laboratory Practices.

The laboratory provides the U.S. Army with a facility to perform life science studies in a work environment that meets the safety, security and surety requirements of regulatory agencies. The researchers within the facility plan, coordinate and guide the basic and applied research of chemical and biological defense materials in the areas of environmental science, pharmacology, toxicology, bioscience, biotechnology and related life sciences, as well as research and application of alternatives to animal testing.

There are extensive engineering controls designed into this facility to ensure worker safety and provide a clean environment. All laboratories are under negative pressure, a system that keeps the chemicals in the laboratory from traveling into other areas of the facility. All gases are processed through redundant filter systems, all effluents are contained during operations, and spill containment safeguards are engineered into the facility.

Providing For The Best Military in The World

SBCCOM's goal is to provide America's troops with the best equipment in the world. That commitment to excellence has led to innovative improvements through the process of researching, developing, fielding and managing basic survival products for soldiers.

SBCCOM understands that the individual soldier is the Army's ultimate weapon and has taken a revolutionary approach to improving his warfighting capabilities, performance and quality of life. By viewing the soldier as a complete weapons platform, researchers believe the key to developing modern products for the warrior is to incorporate flexibility, adaptability and integration into the system as a whole.

The leading edge of this integration occurs throughout all the research, development and acquisition of SBCCOM, including the Soldier Systems Center (SSC). The SSC specializes in both soldier system items and soldier support items that enhance the quality of life for troops in the field. Soldier system products include rations, clothing and individual equipment that protects against the full spectrum of environmental and battlefield threats. SSC also develops mobility items such as parachutes, boots and skis.

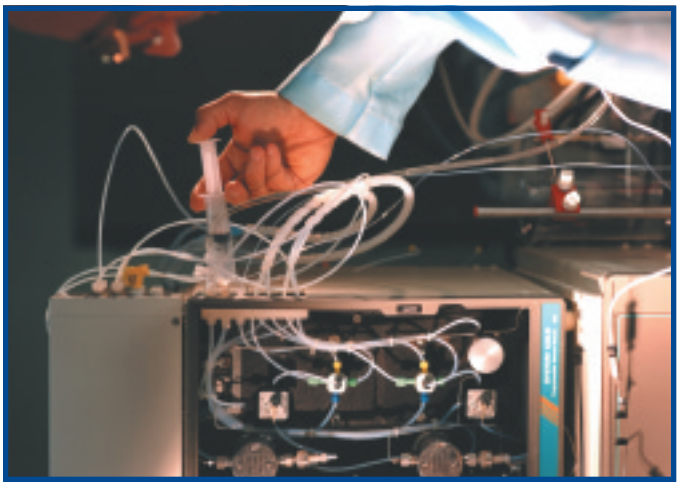
Soldier support products developed and produced at SSC include aerial delivery systems, soft and rigid wall shelters and organizational equipment like field latrines, laundries and kitchens. Responsibility for these endeavors is divided among the SSC's five subordinate activities: the Soldier Center; Project Manager - Soldier; Product Manager - Force Provider; Product Manager - Soldier Support; and the IMMC.

Applying The Science That Increases Warrior Survivability

The SSC and ECBC make advances in a number of areas critical to the development of items and systems for the soldier. Both ECBC and SSC integrate with and provide support to Army project and product managers. Current research and development efforts involve biotechnology, anthropometry, biomechanics, consumer research, food science, aerodynamics, aerial deceleration and modeling and simulation, in addition to work in textiles, fibers and other materials. For example, the SSC is pushing the limits of existing food technology with concepts like the Transdermal Nutrient Delivery System. Similar to a nicotine patch, this conceptual item could transmit essential vitamins and nutrients through the skin by an osmotic process. It would sustain warfighters in extreme circumstances until meals became available.

Project Manager - Soldier manages the Land Warrior program, one of the Army's most revolutionary initiatives. Land Warrior is the first fully integrated fighting system. It is designed to enhance the dismounted soldier's lethality, survivability, mobility, sustainability and command and control by providing significantly enhanced communications, computing, night vision, weaponry, ballistic protection and load-carrying capabilities.

The modularly-designed Land Warrior prototype consists of five subsystems that include a integrated helmet assembly, protective clothing and individual equipment, weapon, radio and computer with software. Each element functions independently while contributing to the successful integration of the overall system. The current fielding date for Land Warrior is federal fiscal year 2004.



Project Manager -Force Provider serves as developer and integrator of the world's premier base camp for deployed troops. The Force Provider concept was conceived in 1991 as a response to inadequate living conditions for U.S. soldiers during Operation Desert Shield/Desert Storm. Since then SBCCOM--as the Army's master builder of deployable cities--has been tasked with constructing 36 containerized rapidly deployable cities by federal fiscal year 2003.

Force Provider offers high-quality living conditions featuring advanced laundry, shower, latrine, kitchen and billeting systems, as well as religious, morale, welfare and recreation facilities.

Each module is designed to accommodate 550 soldiers and 50 base camp operators. *Force Provider* can fulfill a variety of missions: a rest and refit station for combat-weary troops; an intermediate staging base for redeployment; theater reception; or a base camp for soldiers participating in peacekeeping, humanitarian and disaster relief operations.

Project Manager-Soldier Support manages the acquisition of materiel and services that directly support soldiers in the field. Focused on providing America's warriors with the highest standards of living possible in a tactical and operational environment, the activity oversees a variety of essential items. By introducing innovations like the containerized kitchen, high-tech space heaters and advanced field laundry systems, SBCCOM dramatically improves the living conditions for troops in the field. These upgrades boost soldier morale and lead to greater combat effectiveness on the battlefield.

Project Manager-Nuclear, Biological and Chemical Defense Systems manages development, testing, production, fielding and logistics support of assigned nuclear, biological and chemical (NBC) defense systems that include detection, respiratory protection and reconnaissance systems. The Project Manager for NBC defense systems manages the functions of the Product Manager NBC Reconnaissance Systems, who is responsible for the management, development, fielding and support of the Fox vehicular NBC Reconnaissance system.

Product Manager for Smoke/Obscurants manages and directs all aspects concerning development, production and initial fielding of new and major modifications and product improvements of smoke and obscurants systems and products. Programs cover all technical disciplines in all phases (tech base, development, production, and sustainment) of the acquisition life cycle necessary to provide Army forces with a state of the art battlefield obscurant capability. These programs provide products and systems that focus on two key elements: large area smoke and rapid obscuration smoke.

Program Director for Biological Defense manages the development, production, fielding and logistics support of assigned biological defense detection systems. These systems meet both long and short range threat detection requirements.

The Integrated Materiel Management Center (IMMC) acts as the central manager for all of the product lines developed by product managers and program directors with the SSC and the ECBC. To ensure readiness within the Army inventory, this center supports the soldier by providing one-stop shopping for clothing, protective gear, shelters and subsystems. The IMMC also facilitates the usage of aerial delivery, field-service and chemical-biological defense equipment.

The IMMC's Logistics Operations Center serves as the command's primary interface between the higher headquarters and the warfighting commander-in-chief when addressing contingency and crisis issues and exercise planning and support. When fully activated, the center's crisis response team operates 24 hours a day, seven days a week.

The IMMC also provides direct support to field units and organizations located both stateside and overseas. Its 24 logistics assistance representatives share their technical expertise with troops in the field. Deployed around the world, these liaisons work with soldiers every day to ensure they understand how to acquire and use equipment developed by SBCCOM.

SBCCOM is one of only a few DoD organizations that provide the full spectrum of research, development and acquisition in one institution. SBCCOM is a focused organization dedicated to furthering new and developing technologies to better sustain and protect the Joint Services warfighter in the new century. This is especially critical in a time when our forces have been reduced by 40% while simultaneously embarking on more peacekeeping missions.

SBCCOM anticipates a future where our substantially smaller forces are used with greater frequency and for longer duration. Because equipment will be used more heavily, it will wear out faster. This increased operational rate creates the need for research into new technologies that will allow the smaller U.S. force structures to complete the increasing mission load. SBCCOM will meet that need.

Emergency Response

"As fanatics find they can wreak havoc and terror on society with chemical and biological weapons, America must have some response."

-U.S. Senator Pete Domenici

Realizing that the prospect of future chemical-biological incidents on U.S. soil may be only a matter of when, America's leadership has embarked upon a program to help plan, train and exercise in preparation for such events. Since 1997, SBCCOM has developed and managed innovative programs to enhance the capabilities of federal, state and local emergency responders. Emphasis is also increasing on military installation emergency preparedness within the U.S. and mutual aid for emergency response with nearby communities. The HLD program integrates the critical elements of nuclear, biological and chemical agent knowledge for the purposes of installation protection, technical assistance and domestic preparedness. Additionally, the Chemical Stockpile Emergency Preparedness Program (CSEPP) provides expert knowledge and practical preparation for communities surrounding chemical storage and demilitarization sites.

Raising Public Awareness About America's Chemical Weapons Stockpile

An important component of stockpile management is preparing the public for the unlikely event of a release of chemical agent. To educate and raise public awareness SBCCOM manages the CSEPP. CSEPP works to improve emergency preparedness in the communities neighboring the eight chemical stockpile sites in the United States. The sites are located near Edgewood, Md.; Anniston, Ala.; Blue Grass, Ky.; Tooele, Utah; Newport, Ind.; Pine Bluff, Ark.; Pueblo, Colo.; and Hermiston, Ore. Since the program's beginnings in 1988, SBCCOM has teamed with the Federal Emergency Management Agency (FEMA) and state and local governments to enhance the public's protection at all of the sites. CSEPP will continue that mission until completion of stockpile destruction, scheduled for 2007.

CSEPP's goals and accomplishments are centered on enhanced computer automation along with emergency alerts and notifications. All eight stockpile storage installations have achieved emergency preparedness and are actively maintaining operational readiness. The majority of off-post essential systems designed to protect the public are in place and operational.

The CSEPP conducts outreach to response professionals through events attended by Army, FEMA and state and local representatives. In the interest of establishing substantial and consistent mutual aid situations, CSEPP has continued acquisition of approved personal protective equipment from the U.S. Army inventory for participating civilian communities.

Protecting America Against Weapons of Mass Destruction

Awareness of the terrorism threat has grown as a result of attacks on U.S. troops at the Knobar Towers in Saudi Arabia and the Oklahoma City bombing on our own home territory. The DoD was asked to do more to ensure rthat soldiers were safe on their bases and to take charge of domestic preparedness training, exercise and improved response mission and provide response support for the United States. SBCCOM responded to the call with a unified and integrated program providing efficiencies and cross training.

The HLD program consists of three components: Domestic Preparedness; Technical Assistance; and Installation Preparedness. All of the SBCCOM organizational units can and do contribute to this program even though it may not be their primary mission.

The HLD program integrates the critical elements of NBC agent knowledge for the purposes of military and other government installation protection, technical assistance and liaison to the surrounding communities through the Domestic Preparedness Program. As mentioned previously, the CSEPP program is a contributing element that provides expert knowledge and practical preparation for communities surrounding chemical storage and demilitarization sites.

The Technical Assistance initiative provides technical expertise through testing, evaluation, assessments and knowledge of CB matters in support of the HLD program. A wide array of technical assistance based on over 75 years of experience is available to authorities nationwide, with experts from select fields who can be teamed to provide customized solutions to CB planning and response issues. For example, SBCCOM's building protection capabilities have been used in many instances to protect government agency buildings for day-to-day and special event applications. Additionally, extensive knowledge has been organized and stored, readily available to suit each customer's needs.

The NBC Installation Protection program elements provide a comprehensive process for preparing U.S. military installations to respond to asymmetric attacks involving NBC warfare agents, mitigating the impact of the attack on the continuity of operations and restoring vital mission capabilities. This program, successfully piloted at Fort Bragg and Pope Air Force Base, significantly increases the NBC terrorism awareness and preparation at the installation, resulting in a projected reduction of casualties and deployment delays potentially caused by an NBC attack.

After first establishing a baseline of current readiness, personnel designated for handling a CB incident are trained by SBCCOM experts. Using that training and a facilitated planning workshop, those individuals are able to work directly with SBCCOM to develop Force Protection weapon of mass destruction (WMD) response matrices and improve their response systems. Both chemical and biological tabletop exercises are conducted to validate the planning efforts. SBCCOM also provides technical assistance in the areas of building protection and equipment consultation and testing.

Applicable to any installation or facility, the NBC Installation Protection program has proven to be an effective approach to successfully minimize the impact of CB incidents on response forces. By coordinating the participation of experts with experience in building protection, detection and decontamination and physical and collective protection, SBCCOM can effectively and efficiently meet the specific needs of each installation.

Through the Domestic Preparedness Program, discussed earlier, SBCCOM is training 120 cities coast-to-coast in the proper response tactics for incidents of mass destruction involving chemical and biological weapons in addition to providing ongoing expert assistance to first responders around the country. As part of the program, SBCCOM trainers conduct tabletop exercises with each city's first responders to help focus the decision making process used by the local authorities in responding to a CB event.

There are advanced exercises to provide hands-on training for the local response teams in mitigating the results of a potential terrorist attack. SBCCOM also advises senior city officials on issues surrounding developing, modifying and integrating current city policies and plans with new processes and techniques to better prepare and respond to a weapon of mass destruction involving CB materials.

The Domestic Preparedness program offers a number of other services to local governments and first responders. On a daily basis, the professional knowledge of SBCCOM is available to police officers, firefighters, emergency medical technicians, hospitals and emergency management personnel in the form of CB agent information from the CB HelpLine. The Domestic Preparedness HotLine provides immediate attention for professional responders in the event of an emergency.

The SBCCOM is the manager of and key resource contributor to the DoD CB/RRT. This team can respond quickly and effectively to national and international emergency and terrorist events. The Technical Escort Unit, another SBCCOM team and emergency response component of the CB/RRT, is experienced in the transportation and handling of chemical and biological agents as its day-to-day priority mission. It responds to unexpected discoveries of chemical-biological munitions as well as providing response to accidents and incidents.

"Returning Resources to the Community"

Environmental Stewardship

SBCCOM and its partners are working to clean and return vital resources to the community.

Using cutting-edge technology to help prepare and strengthen the nation's soldiers might not automatically bring to mind clean water, clean land and a thriving ecosystem. However, in its critical responsibility to safely store America's chemical weapons stockpile, SBCCOM and its environmental team are charged with this unique task. By restoring land once used to help defend our country, SBCCOM and its partners are working to clean and return vital resources to the community, resources which will one day sustain everything from habitats of various endangered animal species to future commercial economic endeavors.

Given the increased focus and sensitivity toward the environment in recent years, the mission of SBCCOM's environmental team is taken very seriously. In fact, the Command's restoration program is the largest and most comprehensive within the AMC. On the environmental pillars of compliance, pollution prevention, restoration and conservation, SBCCOM manages operating activities for programs or installations in nine states, closure of the super fund site at Rocky Mountain Arsenal, Base Realignment and Closure (BRAC) which includes long term stewardship of Jefferson Proving Ground, Ind. and daily management control of Garrisons at Natick, Mass., and the Aberdeen Proving Ground in Maryland. Chemical agent storage sites, where the stored chemical material is scheduled to be destroyed in accordance with Chemical Weapons Convention treaty commitments will receive remediation and restoration when and where appropriate.

SBCCOM has much to be proud of in its commitment to the nation's most precious natural resources. Recent accomplishments include a master plan for chemical weapons site closure, a process for site closure management and a proposal for chemical agent land disposal regulations. More importantly, SBCCOM continues to make significant progress in restoration at several of these sites. Nowhere is the successful partnership of the Army's commitment and public involvement more evident than at the Rocky Mountain Arsenal. It is an active partnership that involves local communities, government and private agencies. It is also a model that is setting new standards for how to successfully address complex environmental challenges. Upon completion of the final environmental clean-up program, the Arsenal will become the nation's largest urban-situated wildlife refuge.

Rocky Mountain Arsenal- Turning Vision Into Action

"This is a story about partnership.. about a national model...how this environmental cleanup can be brought about by close cooperation between the private sector and the public sector."

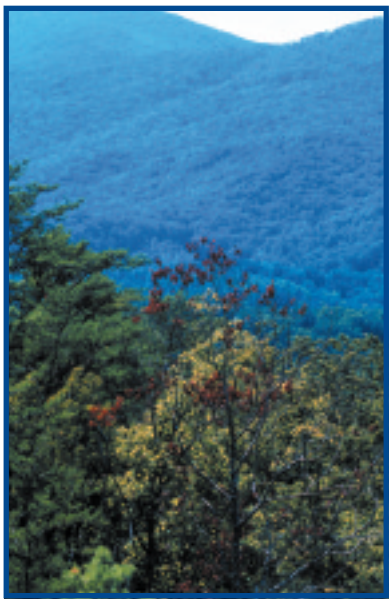
Secretary of Defense William Cohen, during a tour of the Rocky Mountain Arsenal in 1998

At the height of World War II in 1942, the U.S. Army purchased 17,000 acres of land on the outskirts of Denver, Colo., on which to manufacture chemical weapons such as mustard gas, white phosphorus and napalm. For this purpose, the Army built the Rocky Mountain Arsenal, which served to support the war time effort for the next several years.

To foster economic growth in the area, offset operational costs and maintain the facilities for national security, private industry was encouraged to lease facilities at the Arsenal after the war. Under the lease program, the Shell Oil Company (formerly Shell Chemical) began producing agricultural pesticides on the site, ceasing operations in 1982. Wastes generated during production years at the Arsenal were disposed of using widely accepted practices of the time. After discovering that contaminated groundwater had caused crop damage north of the area in the mid 1950's, the Army and Shell began a systematic investigation into the contamination problems, resulting in the Army's Installation Restoration Program. Later on, investigations into the site's environmental assets revealed a sanctuary of nearly 300 wildlife species, including a communal roost of bald eagles--at that time, an endangered species.

In 1995, the Army, Shell and others, such as the Environmental Protection Agency, the U.S. Fish and Wildlife Service and the Colorado Department of Public Health and Environment, reached monumental agreements outlining the framework, purpose and overall rationale for returning stewardship of the site to the community. While simultaneously supporting the environmental remediation and sustaining wildlife habitats, the Arsenal's Comprehensive Management Plan also allows for public use of the refuge through community outreach and educational programs.

Buildings of the RMA that have dotted Denver's skyline for decades have been demolished and other preservation activities at the site are changing Colorado's landscape for the better. Opportunities for public involvement are extensive and encouraged. Through the Arsenal's Restoration Advisory Board, local communities, installations and regulatory agencies work together in an atmosphere that encourages discussion and the exchange of information. Programs like "Speak Out" send Rocky Mountain Arsenal representatives into the community, reaching more than 1,000 people and 70 organizations in one year alone. The quarterly Rocky Mountain Arsenal publication, *Milestones*, provides a regular update to citizens on the progress of the final environmental remediation program. In June of 1999, Rocky Mountain Arsenal received approval from the Occupational Safety and Health Administration (OSHA) for their prestigious Star Voluntary Protection Program. OSHA commended the Arsenal's management for "their extraordinary safety culture and performance record." It is the first cleanup project in the country to be honored with Star Voluntary Protection Program status.



Looking Ahead

SBCCOM will continue to complete the safe, timely and cost-effective remediation of the Rocky Mountain Arsenal and the transition of it and other sites to public hands. Future objectives include development of detailed chemical weapons site closure plans and permitting activities for the new chemical demilitarization plants coming online.

Every day, the mission of the Army and SBCCOM evolves to meet the new challenges of the 21st century. One of those challenges that must be met is literally in our backyard- the renewal and preservation of this nation's landscape. Using all of their technological developments, the people of SBCCOM will continue to reinvigorate, reclaim and beautify the land that has served them over the past century of research and development. Most importantly, the common vision is to return that land to its highest purpose: for the preservation and continued welfare of America's wildlife and for the enjoyment of our nation's citizens for centuries to come.

"Advanced Research For America's Future"

Knowledge for Defense

SBCCOM discovers and cultivates new technologies that will allow our warfighters to meet the challenges of the future.

SBCCOM discovers and cultivates new technologies that will allow our warfighters to meet the challenges of the future. SBCCOM is charged with the responsibility to conduct the research and exploratory development necessary to address the needs of protecting and sustaining troops. SBCCOM includes two world-class centers- SSC & ECBC, each with its own unique capabilities and experience, that together provide American warfighters with the highest protection, greatest mobility, best food and top-flight essentials needed to ensure mission success.

The ECBC, located at Aberdeen Proving Ground, Md., is the DoD's principal research center for chemical and biological defense, employing the nation's top experts on chemical and biological agents and defense systems. ECBC's long history includes vast experience in the development of chemical agents and munitions-a process that continues today, as ECBC still conducts research using actual agents- providing unparalleled insight into how to protect against this threat. Maintaining this capability to produce, store and conduct research with deadly materials guarantees the inside understanding and expertise that will protect U.S. forces.

The ECBC's Research and Technology Directorate manages and executes the DoD CB Science and Technology programs and conducts the DoD CB non-medical research and exploratory development program. ECBC has shaped its research program to support the Joint Service Nuclear, Biological and Chemical (NBC) Defense program. This program focuses on two operationally oriented and Commander-in-Chief driven imperatives: maintaining operational tempo and protecting the force. The ECBC research program includes the areas of chemistry, toxicology and aerosol technology, biological sciences, chemical and biological detection, decontamination and protection and applied simulations and operations research.

In the chemistry realm, ECBC has the capability to explore the properties of known threat agents while continuing work with new agents. The Center also investigates modifications of existing agents, new scenarios, novel formulations and dissemination tactics. The investigation of new agents is necessary to ensure that NBC defense equipment will protect against and detect any new agents that a potential enemy may develop.

Toxicology research capabilities include the ability to establish quantitative limits for protection and decontamination, in addition to thresholds for detection. The Center is establishing toxicology data on agents in their pure form, agents in mixtures common to munitions and agent by-products. Aerosol technology provides the capability to generate and characterize standard test aerosols and chemical and biological simulant aerosols in laboratory facilities, chambers, wind tunnels and in the field. The aerosol technology program is focused on quantitative analyses of aerosol capabilities.

Dr. Bernard Berger Laboratory Complex

The ECBC has state-of-the-art biological research facilities with the capability to conduct research on the properties of biological agents. There are plans to establish a Biological Level 3 facility in the near future. Additionally, ECBC can investigate new agents or genetically engineered modifications to known agents. The Process Engineering Facility provides cutting-edge equipment for tissue culture, fermentation and downstream processing. This facility specializes in bioprocess studies and optimization of cellular products.

The Center maintains the capability to conduct research into technologies that will develop into new detection, protection and decontamination systems. This capability includes the ability to explore point and standoff detection technologies. The on-going research in protection includes new filter technology and new materials for protective equipment. The decontamination capability includes experimenting with actual agents and potential decontamination solutions and systems. This research has developed smaller, lighter systems for U.S. forces.

The simulation capability provides accurate, validated descriptions of the CB threat to assist in the development of new NBC defense systems and support the growing counter-terrorist program. By describing the effects of agent employment, the simulators are intended to accurately model agent effects and implications across a range of military and terrorist scenarios.

Recent ECBC Achievements

- Transitioned the first generation biological time-of-flight mass spectrometer to development.
- Evaluated photo-elastic modular technology for chemical standoff detection.
- Identified nucleic acid candidates for use in biological point detection.
- Selected a single exploratory antibody-based biosensor for the Joint Point Biological Detection System.
- Completed fabrication of the first Joint Service Warning and Identification LIDAR (Laser Identification Detection and Ranging) Detection system which will detect and map chemical agents up to 20 kilometers away.
- Completed screening of new adsorbent filter materials for use in the next generation Joint Service General Purpose Mask.
- Conducted study and analysis of regenerative filtration designs for the next generation of collective protective shelters.
- Completed fabrication of the Joint Chemical Biological Agent Water Monitor.
- Developed a prototype detection system that can integrate multiple detection technologies such as ion trap spectrometry, electromagnetic energy and neutron-based sensing for use detecting NBC agents.

SBCCOM's Soldier System Center (SSC) provides our Joint Forces with a wide range of warrior and warrior support systems. Since 1954 the SSC has been the DoD's center for research on food, shelters, clothing, airdrop systems and individual protection systems that will ensure that America's forces are the best fed, best protected and the most highly mobile military in the world.

One of the unique capabilities of the SSC is the Doriot Climatic Chamber. This facility has the capability to simulate almost any climate on earth using two large wind tunnels. With these facilities, the SSC can create temperatures from -70° to 165° Fahrenheit, relative humidity from 10 to 90%, wind speeds of up to 40 M.P.H. and rain accumulation of up to 4 inches per hour. These chambers permit research on large items under climatic conditions ranging from arctic to tropical.

The SSC is a leader in three-dimensional (3D) anthropometric research, which allows for the description and analysis of the human form. This capability permits analyzing and summarizing 3D image surface data to derive models of the human form for use in developing clothing and individual protection items. This capability is applicable for both military and civilian items.

The Individual Armor Laboratory allows SBCCOM scientists to conduct research about individual protection systems for warfighters and law enforcement officers. This laboratory supports the development of integrated headgear and body armor as well as a variety of special application protective products. This laboratory has the capability to perform computer-aided design and engineering, helmet impact testing, headset sound attenuation and prototype fabrication. The Center retains the capability to test against ballistic, chemical and laser threats.

The Center conducts extensive fabric research, maintaining the capability to test and evaluate new materials for clothing, shelters and individual protection. The Textile Performance Testing facilities have the ability to perform all wet and dry physical and performance testing as well as visual and instrumental color analysis on textiles. Other unique research locations include the Raincourt facility, the Pilot Plant, the Shade Room and the Microscopy Laboratory. This research done at these facilities has led to the creation of new fabrics that are lighter weight, more durable and more threat-resistant than anything soldiers have ever worn.

Air Delivery is an important military concern for power projection and sustainment of our forces and the SSC is the world leader in air delivery concepts and systems. The SSC recently completed an Advanced Technology Demonstration of precision guided high-altitude offset delivery systems. The SSC has the computer laboratory capability to model and simulate the fluid dynamics that influence parachute performance, furthering new air delivery technologies that are applicable to civilian uses such as the space program.

The SSC is also the DoD's center for food research. The Center has the capability to conduct research on nutrients, food preservation, packaging and distribution. The Center is able to conduct food research for special use situations such as those experienced by Special Forces in arctic conditions and troops utilizing emergency survival rations. This work has led to a new understanding of how to maximize soldier performance by developing rations that taste good and contain a finely-tuned mix of nutrients while remaining easy to prepare in remote locations.

Recent SSC Achievements

· Articulated the concept of the Future Warrior 2025. This concept calls for:

- A headgear subsystem with 360° display and a multi-band, multi-mode communications system.

- A combat uniform subsystem with sensors that read the environment and change the camouflage and color as well as providing flame, ballistic and NBC protection.

- A physiological monitoring subsystem with sub-sensors providing data on stress, hydration, temperature and sleep status.

- A weapons subsystem providing an ultra-lightweight dual munitions pod that combines kinetic energy with seeker projectiles.

- A power substation--weighing less than a pound--that provides a 20-watt source, powering the system for up to 6 days.

· Completed fabrication of the Land Warrior System with an integrated helmet assembly, wireless local area network communication, interceptor body armor, computer/radio subsystem with tactical mission software, squad radio, global positioning system and a modular weapons system with thermal sights, laser range-finder and a video sight.

With all of this technology and technological knowledge so near at hand, the people of SBCCOM are truly on the edge of the future. The products they develop will have a profound effect on America as a whole, enhancing our defense capabilities at home and abroad, advancing the ability of our civil and military forces to serve and protect, and changing our daily lives as the technology makes its way into the private sector. The U.S. Army Soldier and Biological Chemical Command takes a proud role in that process by providing U.S. peacekeepers with the equipment they need to defend the land of the free and the home of the brave from whatever threatens Americans' hard-won way of life.

SBCCOM

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